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ABSTRACT

A guide to help instructors improve or review their questioning skills is presented, with a focus on devising appropriate questions and interpersonal skills that maximize student responses. Questions that entail knowledge, comprehension, and simple application levels are distinguished from questions requiring complex application (e.g., analysis and synthesis skills). This distinction is based on Bloom's Taxonomy for ordering thinking skills. For each taxonomy category, student learning activities and types of questions are identified. Open and closed questions are considered, and suggestions for planning questions are offered. Factors that affect successful exchanges between instructors and students are discussed: physical setting, instructor attitude, calling on students, wait-time after asking questions, handling student responses to questions, and responding to students' questions. Four methods for collecting feedback concerning the instructor's questioning skills are covered: videotape/audiotape self-review, peer review, conducting a survey on questioning, student evaluations, and interpreting collected assessments. Questionnaire items for these feedback methods are included. (SW)

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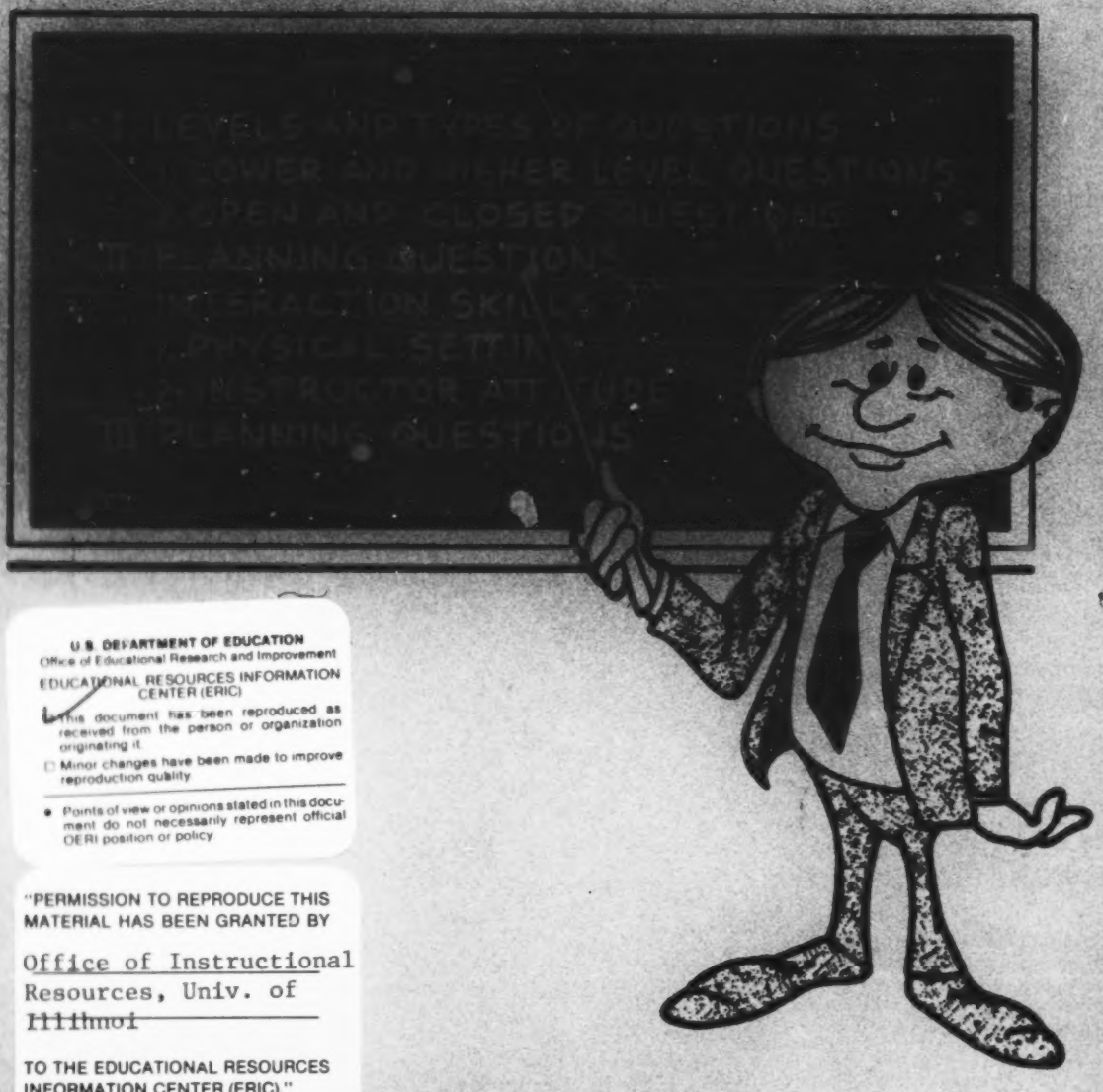
EFFECTIVE CLASSROOM QUESTIONING



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EFFECTIVE CLASSROOM QUESTIONING

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FOREWORD

Some instructors believe that interjecting questions during instruction is a natural process which should be spontaneous. However, questions can become an effective teaching strategy when employed thoughtfully and less than effective when poorly employed. A timely, well-phrased question can capture students' attention, arouse their curiosity, focus upon important points, or even occupy a student's thoughts after class has ended. Students' responses to questions reveal their perceptions and comprehension of the material, level of experience with the topic being presented, and attitudes about the material or course in general. Because the ability to develop adequate or even excellent questioning skills can be learned if some attention and practice is given to it, this booklet will try to explain and provide examples of two important components of successful questioning. These include devising the appropriate questions which will elicit responses consistent with your instructional goals and using the interpersonal skills which enable instructors to maximize student responses. This booklet can be used as a reference for instructors who wish to improve their questioning skills or review and assess their current questioning techniques.

I. LEVELS AND TYPES OF QUESTIONS

Questioning should be used purposefully to achieve well-defined goals. An instructor should ask questions which will require students to use the thinking skills which he is trying to develop. A system exists for organizing those thinking skills. Bloom's Taxonomy[1] is a hierarchial system of ordering thinking skills from lower to higher, with the higher levels including all of the cognitive skills from the lower levels.

Below are the levels of the taxonomy, a brief explanation of each one, and examples of questions which require students to use thinking skills at each level.

Knowledge - Remembering previously learned material, e.g., definitions, concepts, principles, formulas.

a. *What is the definition of "verb"?*
b. *What is the law of supply and demand?*
c. *What are the stages of cell division?*

Comprehension - Understanding the meaning of remembered material, usually demonstrated by explaining in one's own words or citing examples.

a. *What are some words which are commonly used as adjectives?*
b. *What does the graph on page 19 mean?*
c. *Explain the process of digestion.*

Application - Using information in a new context to solve a problem, to answer a question, or to perform another task. The information used may be rules, principles, formulas, theories, concepts, or procedures.

a. *Using the procedures we have discussed, what would you include in a summary of Bacon's essay?*
b. *How does the law of supply and demand explain the current increase in fruit and vegetable prices?*
c. *Based on your knowledge, what statistical procedure is appropriate for this problem?*

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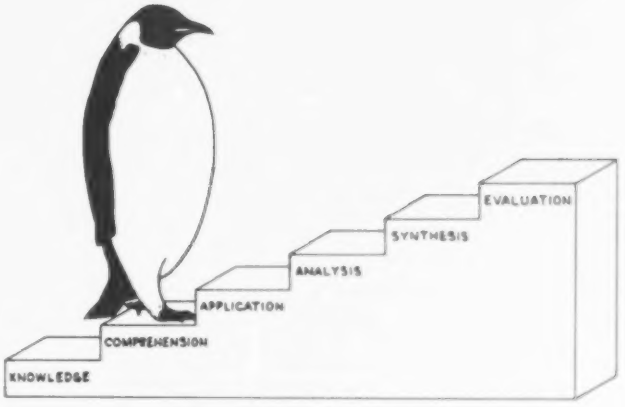
[1]Benjamin Bloom (ed)., Taxonomy of Educational Objectives: Handbook I Cognitive Domain (New York: David McKay Co., 1956).

Analysis - Breaking a piece of material into its parts and explaining the relationship between the parts.

a. *What are the major points that E. B. White used to develop the thesis of this essay?*

b. *What factors in the American economy are affecting the current price of steel?*

c. *What is the relationship of probability to statistical analysis?*



Bloom's Taxonomy is a hierarchial system of ordering thinking skills from lower to higher.

Synthesis - Putting parts together to form a new whole, pattern or structure.

a. *How might style of writing and the thesis of a given essay be related?*

b. *How are long-term and short-term consumer loan interest rates related to the prime rate?*

c. *How would you proceed if you were going to do an experiment on caloric intake?*

Evaluation - Using a set of criteria, established by the student or specified by the instructor, to arrive at a reasoned judgment.

a. *Does Hemingway use adjectives effectively to enhance his theme in The Old Man and the Sea?*

b. *How successful would the proposed federal income tax cut be in controlling inflation as well as decreasing unemployment?*

c. *How well does the Stillman Diet meet the criteria for an ideal weight reduction plan?*

LOWER AND HIGHER LEVEL QUESTIONS

At times instead of referring to a specific level of the taxonomy people refer to "lower-level" and "higher-level" questions or behaviors. Lower level questions are those at the knowledge, comprehension, and simple application levels of the taxonomy. Higher-level questions are those requiring complex application (e.g., analysis, synthesis, and evaluation skills).

Usually questions at the lower levels are appropriate for:

1. evaluating students' preparation and comprehension.
2. diagnosing students' strengths and weaknesses.
3. reviewing and/or summarizing content.

Questions at higher levels of the taxonomy are usually most appropriate for:

1. encouraging students to think more deeply and critically.
2. problem solving.
3. encouraging discussions.
4. stimulating students to seek information on their own.

Typically an instructor would vary the level of questions even within a single class period. For example, an instructor might ask the synthesis question, "How can style of writing and the thesis of a given essay be related?" If she gets inadequate or incorrect student response to that question, she might move to questions at a lower level of the taxonomy to check whether students know and understand material. For example, the instructor might ask, "What is the definition of 'thesis statement'?" or "What are some variables in writing style?" If students cannot answer those questions, the instructor might have to temporarily change her teaching strategy, e.g., briefly review the material. If students can answer lower level questions, the instructor must choose a teaching strategy to help students with the more complex synthesis which the original questions requires, e.g., propose a concrete problem which can be used as a basis for moving to the more abstract synthesis. In the example used here, the teacher might direct students to Jonathan Swift's "Modest Proposal" and ask, "What is Swift's thesis?" and "What are some terms you can use to describe Swift's writing style?"

It is not essential that an instructor be able to classify each question at a specific level. The Taxonomy of Educational Objectives is introduced as a tool which is helpful for defining the kinds of thinking skills instructors expect from students and for helping to establish congruence between the instructor's goals and the questions he asks. Figure 1 provides a summary of the taxonomy and breakdown between lower and higher level questions. Another way to examine questions is described in the next section.

OPEN AND CLOSED QUESTIONS

In addition to asking questions at various levels of the taxonomy an instructor might consider whether he is asking closed or open questions.

A closed question is one in which there are a limited number of acceptable answers, most of which will usually be anticipated by the instructor. For example, "What is a definition for 'adjective'?" requires that students give some characteristics of adjectives and their function. While students may put the answer in their own words, correct answers will be easily judged and anticipated based on a rather limited set of characteristics and functions of adjectives.

An open question is one in which there are many acceptable answers, most of which will not be anticipated by the instructor. For example, "What is an example of an adjective?" requires only that students name "any adjective." The teacher may only judge an answer as incorrect if another part of speech or a totally unrelated answer is given. Although the specific answer may not be anticipated the instructor usually does have criteria for judging whether a particular answer is acceptable or unacceptable.

Both open and closed questions may be at any level of the taxonomy. An open low-level question might be:

"What is an example of an adjective?"

An open high-level question might be:

"What are some ways we might solve the energy crisis?"

A closed low-level question:

"What are the stages of cell division?"

A closed high-level question:

"Given the medical data before you, would you say this patient is intoxicated or suffering from a diabetic reaction?"

Figure 1

QUESTIONING CATEGORY	BLOOM'S CATEGORY	STUDENT ACTIVITY	TYPICAL STEM WORDS
LOWER LEVEL	Knowledge	Remembering: Facts, Terms, Definitions, Concepts, Principles.	What?, List, Name, Define, Describe.
	Comprehension	Understanding the meaning of material.	Explain, Interpret, Summarize, Give examples..., Predict, Translate.
	Application	Selecting a concept or skill and using it to solve a problem.	Compute, Solve, Apply, Modify, Construct.
HIGHER LEVEL	Analysis	Breaking material down into its parts and explaining the hierarchical relations.	How does...apply? Why does...work? How does...relate to...? What distinctions can be made about... and...?
	Synthesis	Producing something original after having broken the material down into its component parts.	How does the data support...? How would you design an experiment which investigates...? What predictions can you make based upon the data?
	Evaluation	Making a judgment based upon a pre-established set of criteria.	What judgments can you make about...? Compare and contrast ...criteria for...?

II. PLANNING QUESTIONS

Effective questioning sessions in classrooms require advance preparation. While some instructors may be skilled in extemporaneous questioning, many find that such questions have phrasing problems, are not organized in a logical sequence, or do not require students to use the desired thinking skills. Below are some steps and suggestions for planning questions.

1. Decide on your goal or purpose for asking questions. Your goal should help you determine what levels of questions you will ask.
2. Select the content for questioning. Choose material which you consider important rather than trivial. Students will study and learn based on the questions you ask. Do not mislead them by emphasizing less important material.
3. Phrase your questions carefully.

   - Ask questions which require an extended response or at least a "content" answer. Avoid questions which can be answered "yes" or "no" unless you are going to follow with more questions to explore reasoning.
   - Phrase your questions so that the task is clear to students. Questions such as "What about foreign affairs?" do not often lead to productive answers and discussion. "What did we say about chemical bonding?" is too general unless you are only seeking a review of any material the students remember.
   - Be sure the questions allow enough flexibility so that students are not playing a guessing game. Avoid "guess what I am thinking" questions.

   Example:

   Instructor: *What is a symptom of Multiple Sclerosis?*

   Student 1: *Numbness.*

   Instructor: *What else?*

   Student 2: *Tingling.*

   Instructor: *What else?*

   Student 3: *Blurred vision.*

   Instructor: *I'm thinking of a different one.*

   Student 4: *Slurred speech.*

   Instructor: *O. K., that's the one I was looking for. Let's go one from there....*

- Your questions should not contain the answers. Avoid implied response questions when you are genuinely seeking an answer from the class. A question such as "Don't we all agree that the author of the article exaggerated the dangers of agent orange to strengthen his viewpoint?" will not encourage student response.

4. When planning your questions try to anticipate possible student responses. You might do this by considering:

   a. What are some typical misconceptions which might lead students to incorrect answers?

   b. Am I asking an open or closed question?

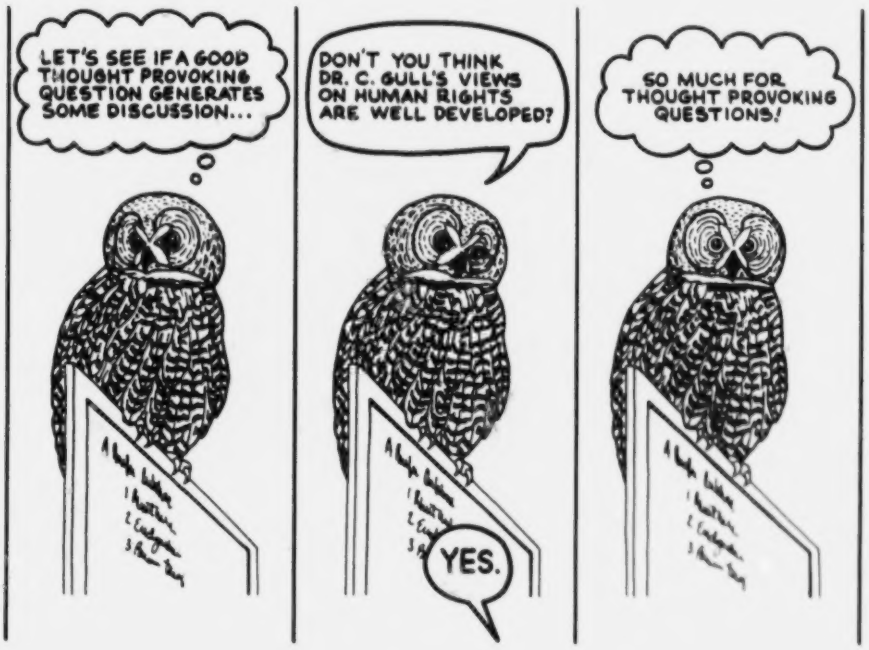
   c. What type of response do I expect from students, a definition? Example? Solution?

   d. Will I accept the answer in the student's language or am I expecting the textbook's words or my own terms?

   e. What will my strategy be for handling incorrect answers? (See p. 17 for suggestions).

   f. What will I do if students do not answer? (See p. 14).

Anticipating student responses should help in your planning by forcing you to consider whether phrasing is accurate, whether questions focus on the goal you have in mind, and whether you have enough flexibility to allow students to express ideas in their own words.


LET'S SEE IF A GOOD THOUGHT PROVOKING QUESTION GENERATES SOME DISCUSSION...
DON'T YOU THINK DR. C. GULL'S VIEWS ON HUMAN RIGHTS ARE WELL DEVELOPED?
YES.
SO MUCH FOR THOUGHT PROVOKING QUESTIONS!

Avoid questions which can be answered "yes" or "no" unless you are going to follow with more questions.

5. Until you are quite skilled at classroom questioning you should write your main questions in advance. Arrange your list in some logical sequence (specific to general, lower level to higher level, a sequence related to content). Should you think of additional or better questions during the questioning process, you can be flexible and add those or substitute them for some of your planned questions. However, having a prepared list of questions will help to assure that you ask questions appropriate for your goals and representative of the important material.

III. INTERACTION SKILLS

Effective use of communication skills by both instructors and students is conducive to the development of positive interaction in the classroom. In order to have successful exchanges between instructors and students:

1. Students should feel free to ask questions of the instructor and their peers.
2. Students should feel free to answer questions.
3. Students should not feel threatened by giving an incorrect response.

In this section we will consider some of the components of successful interactions including:

1. Physical setting.
2. Instructor attitude.
3. Hints for calling on students to maximize student participation.
4. Wait-time after asking questions.
5. Handling student responses to questions.
6. Responding to students' questions.

PHYSICAL SETTING

The instructor needs to be aware of the acoustics of the room in which he teaches. Can students hear you when you ask a question? Can students hear other students ask and answer questions?

1. If you teach in a large lecture hall and want to foster participation, it is a good idea to move students close to each other and close to the front of the room.
2. Facilitate interaction in a small seminar group by arranging students in a circle so that they face each other.
3. In a lab setting make sure students do not begin working on their own until you have finished the lecture/discussion part of the session. It is difficult for students to interact if they are not attentive or if other students are using equipment.

INSTRUCTOR ATTITUDE

An important aspect of atmosphere is "attending behavior" or what an instructor does while a student answers a question. Generally the instructor should be listening to the student, encouraging him to continue, and helping to focus the attention of the class on the student who is responding to the question. This can be accomplished in several ways:

1. Maintain eye contact with the student answering. Some instructors find that they also glance around the room from time to time to determine whether class members are listening.
2. Use nonverbal gestures to indicate your understanding, confusion, or support—head nodding, facial expression, hand gestures which signal the student to continue, or physical stance which indicate that you are thinking about the student's answer.
3. Listen to the student! Do not interrupt even if you think the student is heading toward an incorrect answer. At times a student may realize his own mistake. On other occasions you may simply have misunderstood where the student was going with his answer. Even on the frequent occasions when a student does reach an incorrect answer the other students may learn as much from the incorrect response as from a correct one. Furthermore, interrupting students does not create an atmosphere which encourages participation. You might try using some of these active listening suggestions:

If you ask questions—listen to the responses!

- Wait for a second or two following a student response to be sure that you have listened to everything and that the student has finished talking.
- You might wish to paraphrase a long answer and check with the student to be sure your perception of his response is accurate. This technique, when judiciously applied, makes students aware that you are listening.
- Use the student response to lead to the next question or to make a point. Again, this demonstrates that you are listening.

- While listening to the student try to determine whether you do understand his point. If you don't understand, ask for more information or explanation.
- Listen for the content of what the student is saying, not simply for expected jargon or key phrases.
- Focus your attention on the student, not on what you intend to do next (i.e., ask a question, or end the class).

CALLING ON STUDENTS TO MAXIMIZE PARTICIPATION

1. Call students by their names as opposed to pointing in their general direction. This avoids confusion as to who was called upon and also helps create a positive climate where students feel you know them as individuals.
2. Ask questions of the entire class and try to encourage all students to participate. The advantage of calling on only volunteers is that it may be less threatening. A disadvantage of calling on only volunteers is that a small number of students will be answering all your questions. It is possible to call on nonvolunteers in a nonthreatening manner by:

   - Speaking in a tone of voice which is friendly.
   - Using positive nonverbal cues while calling on the person, e.g., smiling, eye contact.
   - If the nonvolunteer is incorrect or cannot respond, accept his nonresponse without insulting him. Perhaps ask if another student in the class can help him out.

   Example: Kate: I don't know.

   Instructor: O. K., can anyone help Kate out?

3. In order to encourage nonparticipants, call on specific students to answer questions. You can phrase a question, then call on the student. If you call the student's name first, the rest of the class may not listen to the question.
4. Make an attempt to randomly select students to respond. Try not to follow any set pattern when calling on students. For example, if you call on each student in a row, students learn to listen only when it's close to their turn to answer.

Makes an effort to call on students by their names.

5. Try to avoid repeating all student responses. Teacher repetition causes students to learn to listen to you, not their fellow students. In addition, hearing each response twice is boring.

6. Beware of the student who dominates in class by asking or answering all the questions. Try to encourage other students to respond by suggesting others volunteer or by calling on nonvolunteers.

7. Give students an opportunity to ask questions. Do not use "Any questions?" as your only form of feedback from students. Sometimes students are so confused they cannot even formulate a question. In addition many students will not participate because they do not want to make mistakes in front of their peers.

8. Avoid asking all of your questions at the end of the session. If a student was lost at the beginning, he has missed an entire session by the time you have asked a question. Students may also be less willing to answer at the end of the session as they are getting ready to leave.

9. Avoid looking down at notes after asking a question. You should be looking for volunteers and noting confusion or understanding of students.

10. Your nonverbal reactions should complement your verbal responses. For example, it is usually ineffective to say "good point" while looking away or reading notes.

WAIT-TIME

One factor which can have powerful effects on student participation is the amount of time an instructor pauses between asking a question and doing something else (calling on a student or rewording the question).

Research on classroom questioning and information processing indicates that students need at least three seconds to comprehend a question, consider the available information, formulate an answer, and begin to respond. In contrast, the same research established that on the average a classroom teacher allows less than one second of wait-time.

After teachers were trained to allow three to five seconds of wait-time the following significant changes in their classrooms occurred:

- The number of students who failed to respond when called on decreased.
- The number of unsolicited but appropriate responses increased.
- The length of student responses increased.
- The number of student statements where evidence was used to make inferences increased.
- The number of responses from students identified by the teacher as less able increased.
- The number of student-to-student interactions increased.
- The number of student questions increased. (Rowe, 1974)

Allowing wait-time after a student response or question also produced significant changes in classroom interaction. The most notable change was that the instructor made fewer teaching errors characterized by responding illogically or inappropriately to a student comment.

On the other hand, too much wait-time can also be detrimental to student interaction. When no one seems to be able to answer a question, more wait-time will not necessarily solve the problem. Experts say that waiting more than 20-30 seconds is perceived as punishing by students. The amount of wait-time needed in part depends upon the level of question the instructor asks and student characteristics such as familiarity with content and past experience with the thought process required.

Generally lower-level questions require less wait-time, perhaps only three seconds. Higher-level questions may require five seconds or more. With particularly complex higher-level questions some instructors tell students to spend two or three minutes considering the question and noting some ideas. Other instructors allow five to ten seconds of thinking time and then ask students what processes they are using to investigate the questions; this strategy makes students aware that thought process is at least as important as an answer and that alternative processes can be applied to arrive at an answer to the same question.

HANDLING STUDENT RESPONSES

An important aspect of classroom interaction is the manner in which the instructor handles student responses. When an instructor asks a question, students can either respond, ask a question, or give no response. If the student responds or asks a question, the instructor can use one of the following recommended questioning strategies: reinforce, probe, refocus, redirect. If the student does not respond the instructor can use either a rephrase or redirecting strategy. A description of each strategy follows:

1. *Reinforcement.* The instructor should reinforce in a positive way student responses and questions in order to encourage future participation. The instructor can reinforce by making positive statements and using positive nonverbal communication. Proper nonverbal responses include smiling, nodding, and maintaining eye contact, while improper nonverbal responses include looking at notes while students speak, looking at the board or ruffling papers.

   The type of reinforcement provided will be determined by:

   - The correctness of the answer. If a student gives an answer which is off target or incorrect, the instructor may want to briefly acknowledge the response but not spend much time on it and then move to the correct response.
   - The number of times a student has responded. Instructors may want to provide a student who has never responded in class with more reinforcement than someone who responds often.

CAUTION: Vary reinforcement techniques between various verbal statements and nonverbal reactions. Try not to overuse reinforcement in the classroom by overly praising every student comment. Students begin to question the sincerity of reinforcement if every response is reinforced equally or in the same way.

Students may question the sincerity of reinforcement if all responses are reinforced equally or in the same way.

2. *Probe.* Probes are based on student responses. The initial response of students may be superficial. The instructor needs to use a questioning strategy called probing to make students explore initial comments. Probes are useful in getting students more involved in critical analysis of their own and other students' ideas.

Probes can be used in different ways. Probes can be used to:

- Analyze a student's statement, make a student aware of underlying assumptions, or justify or evaluate a statement.

  Example: *Instructor:* *What are some ways we might solve the energy crisis?*

  Student: *I would like to see a greater movement to peak-load pricing by utility companies.*

  Instructor: *What assumptions are you making about consumer behavior when you suggest that solution?*

- Help students deduce relationships. Instructors may ask students to judge the implications of their statements or to compare and contrast concepts.

Example: *Instructor:* *What are some advantages and disadvantages of having grades given in courses?*

Student 1: *Grades can be a motivator for people to learn.*

Student 2: *Too much pressure on grades causes some students to stop learning, freeze, go blank.*

Instructor: *If both of those statements are true, what generalizations can you make about the relationship between motivation and learning?*

- Have students clarify or elaborate on their comments by asking for more information.

Examples: *Instructor:* *Could you please develop your ideas further?*

* * * *

Instructor: *Can you provide an example of that concept?*

* * * *

Student: *It was obvious that the crew had gone insane.*

Instructor: *What is the legal definition of insane?*

* * * *

Student: *It was a violation of due process.*

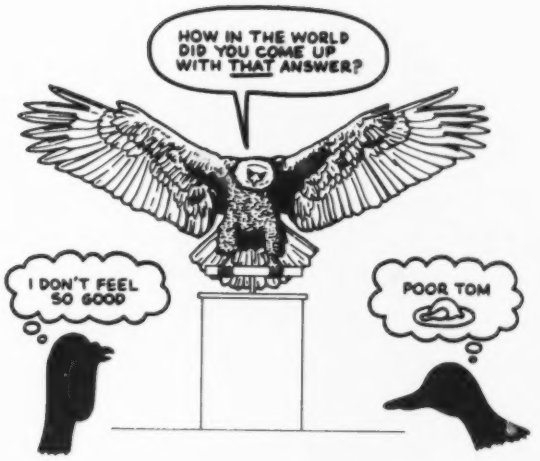
Instructor: *Can you explain why?*

3. *Adjust/Refocus.* When a student provides a response which appears out of context the instructor can refocus to encourage the student to tie her response to the content being discussed. This technique is also used to shift attention to a new topic.

Example: *Instructor:* *What does it mean to devalue the dollar?*

Student 1: *Um—I'm not really sure, but doesn't it mean that, um, like say last year the dollar could buy a certain amount of goods and this year it could buy less—does that mean it devalued?*

Instructor: *Well, let's talk a little bit about another concept, and that is inflation. Does inflation affect your dollar that way?*



An instructor's reaction to incorrect responses may influence future participation.

4. *Redirect.* When a student responds to a question, the instructor can ask another student to comment on his statement. One purpose of using this technique is to enable more students to participate. This strategy can also be used to allow a student to correct another student's incorrect statement or respond to another student's question.

Examples: *Instructor:* *Bill, do you agree with Mark's comment?*

* * * * * *

Instructor: *From your experience, Roger, does what Carol said seem true?*

* * * * * *

Instructor: *Blake, can you give me an example of the concept that Pat mentioned?*

5. *Rephrasing.* This technique is used when a student provides an incorrect response or no response. Instead of telling the student she is incorrect or calling upon another student, the instructor can try one of three strategies:

- The instructor can try to reword the question to make it clearer. The question may have been poorly phrased.

Example: *Instructor:* *What is neurosis?*

Student 1: *(No response).*

Instructor: *What are the identifying characteristics of a neurotic person?*

- The instructor can provide some information to help students come up with the answer.

Example: *Instructor:* *How far has the ball fallen after 3 seconds, Ann?*

Student: *I have no idea.*

Instructor: *Well, Ann, how do we measure distance?*

- The instructor can break the question down into more manageable parts.

  Example: Instructor: What is the epidemiology of polio?

  Student: I'm not sure.

  Instructor: What does "epidemiology" mean?

RESPONDING TO STUDENT QUESTIONS

There are many ways in which an instructor can respond to questions from students. However, all strategies begin with this important step:

LISTEN TO THE STUDENT'S QUESTION.

This is another time to use your active listening skill (See p. 10).

After you are certain you understand the question, be sure that other students have heard and understood the question. Strategies from this point include:

1. Answer the question yourself. This strategy is best when you have little time remaining in class. The disadvantage of this approach is that you do not encourage student-to-student interaction or independent learning.
2. Redirect the question to the class. This strategy helps to encourage student-to-student interaction and to lessen reliance on the instructor for all information.
3. Attempt to help the student answer his own question. This may require prompting through reminders of pertinent previously learned information. Or this strategy may require you to ask the student a lower level question or a related question to begin his thought process. The advantage of this strategy, as in redirecting, is that the student may learn the process of searching for answers to his own questions rather than relying on the teacher. The risk is that the process can be embarrassing or so threatening that the student will be too intimidated to ask questions in the future. Obviously some human compassion is called for when using this strategy.
4. Ask the student to stop after class to discuss the question. This strategy is most appropriate when a student raises complicated tangential questions or when a student is obviously the only one who does not understand a point and a simple answer does not clarify the point. Even in these situations there are risks in using this strategy. Students may be intimidated from raising questions in class. The instructor may think that only the questioning student does not understand when actually a number of students are having the same problem.

5. Refer the student to a resource where she can find the answer.

6. Defer the question until a more appropriate time but NOTE THE QUESTION AND THE STUDENT; RETURN TO THE QUESTION at an appropriate time.

No matter which strategy you use you should return to the student after addressing the questions and determine whether the response has satisfied the student.

If you don't know the answer to a student question NEVER FAKE AN ANSWER. Admit that you cannot answer the question and then select one of these strategies or others you find appropriate:

1. Ask whether someone in the class can answer the question. Most times after class you should follow this with an attempt to determine whether the information provided was accurate or based on sound reasoning and credible sources.

2. Either propose a plan for obtaining evidence for answering the question or ask the students to suggest how the question could be investigated.

3. If possible, suggest a resource where the student can find information. The resource may be written material, another faculty or staff member, a student, or someone from the community.

4. Volunteer to find the answer yourself and report back to the class. Make sure you actually do return with the answer if you choose this option.

IV. METHODS FOR ASSESSING QUESTIONING SKILLS

This section of the booklet presents four methods for collecting feedback related to one's questioning skills. These include self-review, colleague or peer review, survey, and student evaluations of questioning. An instructor can use the information gathered from one or more of the methods to identify strengths and weaknesses in her questioning techniques.

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VIDEOTAPE SELF-REVIEW

*Suggestions for Viewing Your Videotape**

A. Focus your attention on a few aspects of your questioning techniques which are of particular interest to you. Select one or both of the following rating guides to concentrate on while you view your videotape.

page

Level and Types of Questions 23

Attending Behaviors 24

B. Space has been provided at the bottom of each rating guide for additional comments which come to mind as you view the tape.

C. When viewing the videotape of your lesson take advantage of the rewind capabilities of the equipment to replay segments of interest or importance. One recommendation is to stop the tape after posing a question. Anticipate the student response. Continue playing the tape and compare the actual student response with the anticipated response. If there was any inconsistency, try to identify the factors which may have contributed to the question not working as planned.

D. Consider the following questions after viewing your videotape:

- How do your observations and data generated from the Self-Rating Guides compare with your intended goals and purposes of your questions?
- Are your questioning outcomes consistent with your intent?

Using Audiotape Recording to Assess Your Questioning Effectiveness

Occasionally, people who haven't been videotaped before feel anxious or reluctant to use this medium to analyze their teaching. If you feel being videotaped will create excessive anxiety, thus affecting your teaching, perhaps a less threatening alternative would be to audiotape your lesson with a cassette tape recorder. Cassette tape recorders are unobtrusive and fairly easy to operate. As with the videotape recorder you can stop, replay, or fast forward the lesson, focusing upon areas of specific interest. You should be cautioned that cassette recorder microphones may be less effective than videotape recorders when picking up student comments, especially in larger rooms.

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*See p. 34 to make arrangement for videotaping your class.

Secondly, when listening to an audiotape you must visualize the nonverbal and attending behaviors occurring during the lesson. Keep in mind that in many instances what we think is, or was, occurring is not necessarily consistent with what did occur.

LEVELS AND TYPES OF QUESTIONS

Directions: Respond to each of the statements below by circling the number which most closely corresponds to your observation.

3 = Very Satisfied
2 = Satisfied
1 = Needs Improvement
NA = Not Applicable

1.	Asked questions which were appropriately phrased and understood by students.	3	2	1	NA
2.	Asked questions which were at an appropriate level for the materials being covered.	3	2	1	NA
3.	Asked questions which required students to think at various levels of the taxonomy.	3	2	1	NA
4.	Questions followed a logical pattern.	3	2	1	NA
5.	Student responses were consistent with intended goals or objectives of the questions.	3	2	1	NA
6.	Asked questions which monitored student progress.	3	2	1	NA
7.	Encouraged students to answer difficult questions by providing cues or rephrasing.	3	2	1	NA
8.	Asked probing questions if a student's answer was incomplete or superficial.	3	2	1	NA
9.	Used rhetorical questions to gain student's attention.	3	2	1	NA
10.	Avoided "implied response" type questions.	3	2	1	NA

OTHER COMMENTS:

Directions: Respond to each of the statements below by circling the number which most closely corresponds to your observation.

3 = Very Satisfied
2 = Satisfied
1 = Needs Improvement
NA = Not Applicable

Atmosphere

1. Addressed questions to individual students as well as the group.	3	2	1	NA
2. Called on students by name.	3	2	1	NA
3. Called upon students in a friendly non-threatening manner.	3	2	1	NA
4. Paused after all questions to allow students time to think of an answer (wait-time).	3	2	1	NA
5. Avoided interrupting students during questions or responses.	3	2	1	NA
6. Patiently handled incorrect responses.	3	2	1	NA
7. Checked understanding of unclear student responses or questions by paraphrasing.	3	2	1	NA
8. Allowed and encouraged students to ask questions.	3	2	1	NA
9. Received student questions politely and when possible enthusiastically.	3	2	1	NA
10. Avoided using a condescending or put-down tone when responding to student answers or questions.	3	2	1	NA

Reinforcement

11. Demonstrated active listening skills (e.g., eye contact, head nodding) when interacting with students.	3	2	1	NA
12. Used positive nonverbal cues (e.g., smiling, friendly voice) when students were responding.	3	2	1	NA
13 Clarified, built upon, or developed ideas suggested by students.	3	2	1	NA
14. When necessary, asked students to clarify their questions.	3	2	1	NA

OTHER COMMENTS:

PEER REVIEW

Conducting a Mini-lesson

The purpose of peer teaching is to provide you with an opportunity to apply some of the suggestions mentioned in this booklet. Applications of these suggestions should occur in an informal and nonthreatening atmosphere.

WHO IS INVOLVED?

You (the instructor) and one to three professional colleagues who have volunteered to provide you with support and assistance in analyzing and refining your teaching skills.

WHAT AND WHY?

Identify a few specific goals or questioning skills you wish to incorporate into a short 10-20 minute lesson which will be presented to your colleagues. Your colleagues help by:

1. Discussing your goals or objectives with you.
2. Participating as learners during the lesson.
3. Organizing their observations.
4. Analyzing your questioning techniques.
5. Providing constructive feedback.
6. Helping you develop a strategy for making your instruction more effective.

WHAT IS IN IT FOR YOUR COLLEAGUES?

Some of the ideas and approaches you will be testing may also be new to one or more of the group. Through active participation and exposure to these concepts, your peers may learn more about their own teaching.

AVAILABLE OPTIONS

There are three ways peer teaching can be conducted:

1. As traditional peer teaching: one instructor presents a lesson to a few colleagues.

2. As videotaped peer teaching: the same framework as above, except the lesson is videotaped to provide you with an additional source of feedback.

3. Same as #1, or #2 but led by an educational specialist from the Office of Instructional and Management Services.

Anyone interested in making arrangements for option #2 or #3 should contact the Office of Instructional and Management Services at 333-3370.

SUGGESTIONS FOR USING THE PEER TEACHING CYCLE

Pre-Teaching Conference

The pre-teaching conference provides you with an opportunity to meet with your peer group and communicate your goals and the procedures to be followed. Awareness of your goals will help each participant focus upon how well your goals are reflected in your teaching. Group members can also suggest ways in which they may provide feedback related to your specific goals.

Teaching Session

Plan your presentation to take between 10-20 minutes. Remember, this is a "mini-teaching" exercise. Plan accordingly. Select and focus upon only a few suggestions presented earlier in this booklet. Encourage your group to participate as if this were an actual learning situation. Discourage role playing.

Analysis

After completing your mini-lesson, allow yourself a few minutes to jot down some notes concerning your impressions and analysis of the lesson. These impressions will later be shared with the group.

Each member of the group should complete the feedback form presented on page 28 and summarize his observations according to the specific goals discussed during the pre-teaching conference.

Conference/Critique Session

During this session you and the group share your observations and analysis of the lesson. Try to:

1. Focus on the predetermined areas of concern, e.g., levels and types of questions, phrasing questions.
2. Focus on a few areas, not many.
3. Focus on positive as well as negative aspects of the lesson.
4. Support observations with data taken from the lesson (quotes, critical incidents).

Post-Conference Planning

The purpose of this session is to provide you with time to reflect upon comments made by the group and compare them with your own observations. You should decide which feedback is most useful and incorporate that information into a plan or strategy for a future lesson. You might consider using a continuing series of peer teaching exercises, each growing out of a preceding one and leading to the next. By following this cycle, information and data generated from one session may be applied to another.

Directions: *Respond to each of the statements below by circling the number which most clearly corresponds to your observation.*	4 = Very Adequate 3 = Adequate 2 = Somewhat Adequate 1 = Not Adequate NA = Not Applicable

I. Demonstrates Skill In Asking Appropriate Levels and Types of Questions.

1. Asked questions which were at an appropriate level for the material being covered.	4	3	2	1	NA
2. Questions followed a logical pattern.	4	3	2	1	NA
3. Questions served a purpose.	4	3	2	1	NA
4. Asked questions which required students to think at various intellectual levels.	4	3	2	1	NA

II. Demonstrates Skill in Phrasing Questions and Handling Student Responses.

1. Allowed adequate wait-time after posing questions.	4	3	2	1	NA
2. Demonstrated active listening skills (e.g., eye contact, head nodding) when interacting with students.	4	3	2	1	NA
3. Reinforced student responses.	4	3	2	1	NA
4. Avoided interrupting students during questions or responses.	4	3	2	1	NA

Use this space to write strengths and weaknesses you observed in the instructor's questioning techniques.

STRENGTHS

WEAKNESSES

COLLEAGUE VIDEOTAPE REVIEW

The purpose of colleague videotape review is to provide you with additional expert perspectives about one of your videotaped lessons. Colleagues in your area of academic interest can be a good source of helpful information.

WHO IS INVOLVED?

You (the instructor) and one to three colleagues who will provide you with assistance in analyzing a videotape of your classroom teaching.

WHAT IS INVOLVED?

Arrange to have a videotape made of your classroom teaching. Ask your colleagues to view the tape and provide you with their impressions. They can expect to spend approximately an hour observing the tape and another hour discussing and reviewing with you selected parts of the tape.

WHAT IS IN IT FOR YOUR COLLEAGUES?

Some of the ideas and approaches you will be testing may also be new to one or more of the group. Through active participation and exposure to these concepts, your peers may learn more about their own teaching.

PROCEDURAL OPTIONS:

1. You should ask your colleague(s) to concentrate on specific aspects of your lesson chosen from the Rating Guides presented earlier on pages 23 - 24 . The Rating Guides for each category can be completed by your colleagues as they view your videotape.
2. If more than one colleague is looking at the tape, they may want to get together before meeting with you to organize their comments, save time and avoid redundancy.

HOW?

If you call the Instructional Development Division of the Office of Instructional and Management Services (333-3370) you can make arrangements for videotape and playback equipment. If you wish, the staff can also suggest colleagues who may be willing to watch your videotape.

Survey on Questioning

The following survey can be used to provide you with quick and efficient systematic information concerning students' perceptions of the "questioning/interaction" atmosphere in your classroom.

SURVEY ON QUESTIONING

Directions: Respond to each of the statements below by circling the response which most closely corresponds to your observation.

1. How would you characterize communication in your class?
   a. As an uninterrupted lecture by the professor?
   b. As a lecture where members of the class sometimes raise questions about the material being presented?
   c. As a lecture where the professor and/or class members often stop to discuss the material being presented?
   d. Other. (Specify on back)
2. I feel free to ask questions when I do not understand a point the instructor is making.
   a. Usually b. Sometimes c. Seldom
3. The questions presented to the class are generally:
   a. Too difficult b. About right c. Too easy d. Other (Specify on back)
4. During the class, the instructor asks questions to determine if we understand the presentation.
   a. Usually b. Sometimes c. Seldom d. Not applicable
5. The instructor adjusts the presentation based upon student feedback during the lesson.
   a. Usually b. Sometimes c. Seldom d. Not Applicable
6. The instructor misunderstands student questions.
   a. Usually b. Sometimes c. Seldom
7. The instructor answers questions clearly and concisely.
   a. Usually b. Sometimes c. Seldom
8. The instructor is patient with students who ask questions.
   a. Usually b. Sometimes c. Seldom
9. Do you feel comfortable responding to questions in this class?
   a. Usually b. Sometimes c. Seldom d. Not applicable

STUDENT EVALUATION OF QUESTIONING SKILLS

Using ICES Questionnaire Items to Assess Your Questioning Skills

The following set of ICES (Instructor and Course Evaluation System) questionnaire items can be used to assess your questioning skills. The items are presented with their original ICES catalogue number. You are encouraged to include one or more of the items on the ICES evaluation form in order to collect students' opinions of your questioning skills.

33--How much time was alloted to classroom questioning and discussion?

Too much	Too little

328--Did the instructor raise challenging questions in class?

Yes, Often	No, Seldom

329--Questions presented to the class to generate discussion were generally:

Too specific	Too vague

331--The instructor asked open-ended questions.

Almost always occurred	Almost never occurred

333--The instructor was receptive to differing viewpoints or opinions.

Yes, quite open	No, didn't want them

336--Did the instructor clarify student ideas by inflection (e.g., said "Do you mean...)

Almost always	Almost never

341--During presentations, did the instructor check on students' understanding?

Almost always	Almost never

354--The instructor listened attentively to what class members had to say.

Always	Seldom

359--How often did the instructor understand your comments or questions?

Almost always	Almost never

363--The instructor corrected student statements without further discussion.

Almost always occurred	Almost never occurred

366--The instructor thoroughly answered students' questions.

Almost always	Almost never

379--The instructor was condescending toward students.

Strongly agree	Strongly disagree

390--There was a positive interaction between students and instructor.

Almost always	Almost never

391--The atmosphere in the classroom seemed:

Relaxed and friendly	Tense and unfriendly

392--The instructor promoted an atmosphere conducive to work and learning.

Strongly agree	Strongly disagree

401--Students were free to interrupt presentations if points needed clarification.

Strongly agree	Strongly disagree

467--For this course rate the importance of student class participation.

Very important	Not important

SUGGESTIONS FOR INTERPRETING COLLECTED ASSESSMENTS

The information resulting from self, peer, or student review of your lesson is not easily interpretable. We recommend that you analyze your student or peer comments by looking for particular response patterns. For example, you may have a problem with your questioning ability if your students and colleagues cannot identify the purpose or goal of your questions, have trouble understanding the questions, or fail to answer questions as anticipated. Some common patterns observed when using ineffective questioning techniques are provided below. Beside each pattern are suggestions for improvement. The list is not meant to be exhaustive. Instead, it offers some practical suggestions for improvement and should stimulate your thinking of other suggestions.

Patterns	Suggestions
Answered Own Questions/No Student Response	1. Allow for sufficient wait-time. 2. Call on non-volunteers; students may have become dependent upon you to provide answers. 3. Perhaps your questions are too difficult; make an effort to reword the question by breaking down the concept into smaller more manageable parts. 4. Make sure you are heard and understood by everyone.
Student Responses Consistently Incorrect, Vague or Off-Target	1. Formulate questions prior to class, anticipating the range of possible student responses. 2. Be sure the wording or phrasing of the question requires responses consistent with the purpose of the question. 3. Avoid asking multiple questions or vague "what about..." type questions. 4. Use familiar terminology when phrasing questions.

Patterns	Suggestions
"Yes/No" or One-Word Student Responses	1. The opening words of a question frequently determine the level and type of student response. If you want to avoid one word responses, avoid questions beginning with the following words which tend to elicit one-word responses: are; can; do; does; have; is; would.
Interpreting or Cutting Off Student Responses	1. Listen to student responses. Demonstrate active listening skills by maintaining eye contact and reinforcing student contributions. 2. If you are going to ask questions during class, be courteous and patient enough to listen to student responses. Students may be less willing to participate in the future if they have been treated rudely.
Same Students Answering All the Time	1. Avoid depending upon the same few students to answer questions all the time. Their responses may not necessarily be representative of the larger group. 2. Tactfully thank them for their continuous contributions, and ask for other volunteers. 3. Call upon non-volunteers in a friendly non-threatening manner.

ASSISTANCE OFFERED BY THE OFFICE OF INSTRUCTIONAL AND MANAGEMENT SERVICES (IMS)

The information in this booklet is intended for self-instruction. However, IMS staff members will consult with faculty who wish to analyze and improve their questioning skills. The staff can also consult with faculty about other instructional problems. Instructors wishing to have a lesson videotaped or observed should call the Office of Instructional and Management Services to arrange a date and time. Instructors can arrange to view the videotape privately or with an IMS staff member. For additional information, please call the Instructional Development Division of the Office of Instructional and Management Services at 333-3370.

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